

**Notice of Allowability**

Application No.

10/616,366

Applicant(s)

BRUCE ET AL.

Examiner

Abolfazl Tabatabai

Art Unit

2624

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Terminal Disclaimer filed on May 29, 2007.
2. ☒ The allowed claim(s) is/are 1-33.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### **Drawings**

1. The drawings were received on July 9, 2003. The Examiner accepts these drawings.

### **Terminal Disclaimer**

2. Terminal disclaimer have been provided on May 29, 2007 to overcome an obviousness type of double Patenting rejection over Curry (U. S. 7,113,624 B2).  
The terminal disclaimer has been recorded.

### **Reasons for Allowance**

3. The following is an Examiner's statement of reasons for allowance.

The prior art of record fails to teach or suggest, apparatus and method for detecting and locating rare cells comprises (a) moving the sample generally perpendicularly to the scan path of the radiation beam sweeping, the moving cooperating with the sweeping so that the beam illuminates the entirety of the sample; transmitting the collected light along a fiber associated with the at least one proximate element, the fiber channeling the collected light to a selected output region including an array of fiber optic second ends, wherein an arrangement of the array of fiber optic first ends is distinct from an arrangement of the array of fiber optic second ends in combination into other features and elements of claim 1; (b) a fiber optic bundle having a proximate bundle end of first fiber ends arranged to define an input aperture viewing the biological smear on the translation stage, and a distal bundle end of second fiber ends arranged to define an

output aperture shaped differently from the input aperture and disposed away from the translation stage; a scanning radiation source arranged in fixed relative position to the input aperture, the scanning radiation source scanning a radiation beam on the biological smear within a viewing area of the input aperture, the radiation beam interacting with the biological smear to produce a light signal that is received by the input aperture and transmitted via the fiber optic bundle to the output aperture in combination into other features and elements of claim 11; (c) moving the sample in a first direction generally perpendicularly to the linear path of the radiation beam sweeping, the moving in the first direction cooperating with the sweeping to raster the radiation beam on the sample; moving the sample in a second direction, generally perpendicular to the first direction, a distance to a second portion of the sample; transmitting the collected light along a fiber associated with the at least one proximate element, the fiber channeling the collected light to a selected output region, wherein a largest spatial dimension of the output region is substantially smaller than a largest spatial dimension of the array of fiber optic proximate ends; detecting the collected light from the first portion of the sample at the selected output; transmitting the collected light along a fiber associated with the at least one proximate element, the fiber channeling the collected light to the selected output region wherein the largest spatial dimension of the output region is substantially smaller than the largest spatial dimension of the array of fiber optic proximate ends in combination into other features and elements of claim 25; (d) a controller that controls the translation of the translation stage in the first directions and the sweeping of the radiation source to raster the excitation radiation

beam across the biological smear to identify rare cells in the first portion of the biological smear based upon the characteristic luminescence detected during the rastering, the controller further controls translation of the translation stage in a second direction to place a second portion of the biological smear in a position where the radiation source linearly sweeps the excitation radiation beam across the second portion of the biological smear with a sweep direction perpendicular to the first direction, an interaction region of the radiation source and the second portion of the biological smear being arranged relative to the receiving aperture such that characteristic luminescence produced in the interaction region is collected by the receiving aperture in combination into other features and elements of claim 29.

**4. Claims 1-33 are allowed.**

**5.** Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### **Citation of Relevant Prior Art**

**6.** The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Adachi et al (U. S. 6,582,363 B2) disclose video endoscope system and illumination optical system

Nelson et al (U. S. 6,636,623 B2) disclose optical projection image system and method for automatically detecting cells with molecular marker compartmentalization

associated with malignancy and disease.

Moorman et al (U. S. 5,651,047) disclose maneuverable and locatable catheters.

### **Contact Information**

7. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to ABOLFAZL TABATABAI whose telephone number is (571) 272-7458.

The Examiner can normally be reached on Monday through Friday from 9:30 a.m. to 7:30 p.m. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Bhavesh Mehta, can be reached at (571) 272-7453. The fax phone number for organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

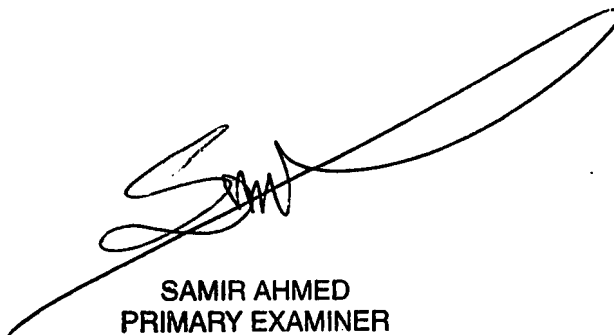
Abolfazl Tabatabai

Patent Examiner

Technology Division 2624

July 3, 2007

*A. Tabatabai*



SAMIR AHMED  
PRIMARY EXAMINER